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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/517,804	03/02/2000	Amit Gulati	9804-015-999	4426

24341 7590 01/20/2004

Pennie & Edmonds, LLP
3300 Hillview Avenue
Palo Alto, CA 94304

EXAMINER

WONG, ALLEN C

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 01/20/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/517,804

Applicant(s)

GULATI ET AL.

Examiner

Allen Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 13, 14 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13, 14 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/20/03 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 13 have been fully read and considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9, 13-14, 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheney (5,668,599) in view of Smith (5,802,600).

Regarding claim 13, Cheney discloses a computer readable memory to direct a computer to function in a specified manner, comprising:

a buffer management module to establish a first buffer size and a second buffer size for a scalable buffer (fig.4, element 600 is a buffer management module that appropriates the first and second buffer sizes for scalable buffer 601);

a video decoding module to process a video stream with said scalable buffer configured to said first buffer size and said second size (fig.4, element 301); and

an analysis module to create memory utilization data characterizing cache memory performance during the processing with said scalable buffer configured to said first buffer size and during the processing with said scalable buffer configured to said second buffer size, said analysis module including a buffer size adjuster to assign a buffer size that is dependent upon said first buffer size and said second buffer size for said scalable buffer in accordance with said memory utilization data (col.12, lines 13-45, fig.4, element 401 is the controller module or analysis module that is interactive with all parameters presented element 401 for analysis; further, Cheney teaches the adjustment of a buffer size register and a spill size register for minimizing memory use and permit efficient decoding, and that since the elements function interactively together, there is a relationship between the buffers, as disclosed col.14, lines 25-36).

Although Cheney does not specifically disclose the limitation of wherein the memory utilization data that includes cache miss rate data. However, Smith teach the limitation of wherein the memory utilization data that includes cache miss rate data (col.4, ln.1-12; Smith discloses that a cache allocation procedure can be implemented to reduce the cache miss rate by maintaining a record of the cache misses that occur in the cache memory portions, and then this record of cache misses, ie. memory utilization

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data, is utilized for adjusting, controlling or modifying the sizes of the cache memory portions, thus, the Smith teaches the relationship between the first and second memory portions as well as obtaining the cache miss rates data). Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Cheney and Smith, as a whole, for utilizing the memory utilization data that includes the cache miss rate data so as to enhance, improve the cache memory performance. Doing so would speed the task of decoding high quality images for viewing and save costs in the long run with smooth, efficient memory performance routines.

Note claim 1 has similar corresponding elements.

Regarding claims 2, 14 and 15, Cheney discloses the definition of a buffer size as a multiple of an encoded image data block in the form of a macroblock (col.13, ln.45 to col.14, ln.3; Cheney discloses macroblock image formats 4:2:0 and 4:2:2, where a macroblock is a data unit that contains luminance and chrominance components, for instance, 4:2:0 chroma formatted macroblock comprises data covering a 16 pixel by 16 pixel section of the video frame and 4:2:2 chroma sampling format comprising four 8x8 blocks of luminance data and four corresponding 8x8 blocks of chrominance data).

Regarding claims 3 and 16, Cheney discloses the use of a variable length decoder (fig.4, element 311).

Regarding claims 4 and 17, Cheney discloses the use of an inverse discrete cosine transfer function (fig.4, element 331).

Regarding claims 5 and 18, Cheney discloses the use of a motion compensator (fig.4, element 341).

Regarding claims 8, 9, 21 and 22, Cheney discloses the adjustment of the buffer size (col.14, lines 25-36, Cheney teaches the adjustment of a buffer size register and a spill size register for minimizing memory use and permit efficient decoding).

If one is not convinced that Cheney discloses the buffer size adjustment, then one of ordinary skilled in the art can refer to the teachings of Smith to teach the adjustment of the buffer size (col.4, ln.1-12; Smith discloses the controlling, adjusting or modifying of the sizes of the first and second portions of the cache memory). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Cheney and Smith, as a whole, for implementing the memory utilization data that includes the cache miss rate data so as to enhance, improve the cache memory performance. Doing so would speed the task of decoding high quality images for viewing and save costs in the long run with smooth, efficient memory performance routines.

Regarding claims 6, 7, 19 and 20, Cheney does not specifically disclose the use of cache miss rates. However, Smith teaches the use of cache miss rates (col.4, ln.1-12; Smith discloses that a cache allocation procedure can be implemented to reduce the cache miss rate by maintaining a record of the cache misses that occur in the cache memory portions). Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Cheney and Smith, as a whole, for implementing the memory utilization data that includes the cache miss rate data so as to enhance, improve the cache memory performance. Doing so would speed the task of decoding

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high quality images for viewing and save costs in the long run with smooth, efficient memory performance routines.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Saito (US 5,634,027) discloses a cache memory system for multiple processors with collectively arranged cache tag memories.

Smith et al. (US 5,594,886) discloses a pseudo-LRU cache memory replacement method and apparatus utilizing nodes.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

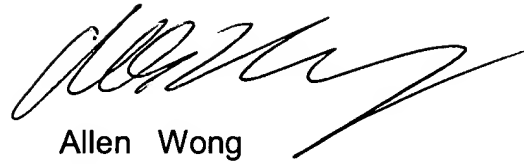
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

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A handwritten signature in black ink, appearing to read 'Allen Wong', with a long, sweeping horizontal stroke extending to the right.

Allen Wong
Examiner
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AW
1/13/04